NOTES ON SOME SPECIES OF LEPIDOPTERA IN RELATION TO THE STRETCH COLLECTION

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The Stretch names in Lepidoptera have heretofore presented a decided problem. Fortunately, most of these were illustrated by Stretch and these illustrations are, on the whole, good. Those published as a part of "Illustrations of the Zygaenidæ and Bombycidæ of North America" are excellent. Other illustrations consist of plates II-XII of Stretch's manuscript "Heterocera Americana," and were published, 1906, Jour. N. Y. Ent. Soc., XIV, in connection with pages 117-125, on which are short footnotes by the editor, Dr. H. G. Dyar. There is, of course, no assurance that the specimens from which these last plates were made, in the case of Stretch names, were the actual types except in the cases where new names are put into print, the sole description being the figure.

Some time ago, we wrote to Mr. E. P. Van Duzee, explaining that some of the Stretch names were not definitely placed and asking if we might borrow the types. The Stretch collection is now in the California Academy of Sciences as a permanent loan from the University of California. At our instigation, Mr. Van Duzee took this matter up with the proper authorities, and on September 11, 1924, wrote as follows:

"You may have felt I was never going to send on the Stretch types, but I was only waiting to make sure I had them all. I have been over the Stretch collection repeatedly, and am able to find but twenty-eight specimens that can possibly be types. Of these, I think but two are so labeled In the cases of all of these species, I am sending all specimens in the Stretch collection, so if there are types they must be among these. They are a sorry-looking lot I cannot help feeling there should be more of his types in the collection, but they may have been destroyed by pests. I understand this collection was received by the University of California in bad shape, and was gone over and cleaned up by Rivers, and again later by someone at the University, and some of the type material may have been eliminated in that way."

By various means we were able to exclude a considerable proportion of the twenty-eight possible types from any possibility of their being actual Stretch types. Our notes on the remainder follow:

CISTHENE PLUMBEA Stretch

1885, Stretch, Ent. Amer., I, 102, Cisthene.

1893, Neumoegen & Dyar, Jour. N. Y. Ent. Soc., I, 115, subjecta var., Cisthene.

1900, Hampson, Cat. Lep. Phal. B. M., II, 370, pl. XXIX, f. 4, Illice.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 118, pl. III, f. 2, Cisthene.

1918, Draudt, in Seitz, Macrolepid., VI, 260, pl. XXXIII, C, Illice.

Two females, one bearing a name label, otherwise unlabeled, were received. These agree with the original description and published figures, and are probably types. The species is quite rare in collections. Besides these two specimens, the only other specimen known to us is the one in the United States National Museum, from which Hampson's plate was made. Draudt's figure is evidently copied from Hampson.

HALISIDOTA ARGENTATA SOBRINA Stretch

1873, Stretch, Zyg. & Bomb. N. Am., pp. 87, 135, pl. VI, f. 10, Halesi-dota.

1873, Hy. Edwards, Proc. Calif. Acad. Sci., V, 369, biol., Halisidota.

1890, Smith, Can. Ent., XXII 230, Halisidota.

1893, Neumoegen & Dyar, Jour. N. Y. Ent. Soc., I, 171, argentata race, Halisidota.

1901, Hampson, Cat. Lep. Phal. B. M., III, 149, argentata s. sp., Halisidota.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 123, pl. XI, f. 2, Halisidota.

1910, Rothschild, Nov. Zool., XVII, 56, argentata s. sp., Halisidota.

Described from a single & from Lorquin, Coll. Stretch, California, exact locality unknown.

A wreck of a δ , agreeing identically with Stretch's description and figure (of type) was received. This bears a label "California" and a small round pin label 282a. In all probability this is the type.

This subspecies is not common in collections. The Barnes collection only possesses two specimens, both males from Monterey County, California, May.

EUBAPHE AURANTIACA BREVICORNIS (Wlk.)

1865, Walker, Cat. Lep. Het. B. M., II, 536, Crocota. belfragei (Stretch).

1885, Stretch, Ent. Amer., I, 103, Crocota.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 118, pl. III, f. 15, Crocota.

A single & was received labeled "C. Belfragei Str." It

agrees well with the description, and is probably the type. It lacks the discal dot on the hind wing, but is otherwise quite typical of the form going under the name *brevicornis* in collections, to which it has already been sunk. At the present time we see no reason to retain separate names for forms with and without the discal dot on the hind wing.

EUBAPHE COSTATA (Stretch)

1885, Stretch, Ent. Amer., I, 103, Crocota.

1889, Smith, Can. Ent., XXI, 194, Crocota.

1893, Neumoegen & Dyar, Jour. N. Y. Ent. Soc., I, 157, Eubaphe.

1901, Hampson, Cat. Lep. Phal. B. M., III, 192, pl. XLII, f. 15, Holomelina.

1919, Seitz, Macrolepid., VI, 295, (pl. XXXVIII, C, as fragilis), Eubaphe.

Described from Texas (Belfrage).

A single & was received, bearing the label "C. costata Str.," and also a small dark purple pin label indicative of Texas. In all probability this is the type.

This presumable type is considerably paler than all specimens in the Barnes collection from Texas, New Mexico, and Arizona, and matches Colorado specimens described by Barnes and McDunnough as race pallipennis. A very long series of both the Texas-Arizona race and the Colorado race are before us. The color difference seems constant. We consider the presumable type of costata to have faded sufficiently to appear in color practically identical with pallipennis.

Eubaphe "obscura" (Stretch)

1885, Stretch, Ent. Amer., I, 103, Crocota.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 118, pl. III, ff. 25-26, Crocota.

Described from "Pennsylvania, Strecker; New Hampshire, Fernald."

This name presents a very interesting problem. It was described in 1885, but not figured until 1906, when Stretch credited it to Strecker.

Evidently, three different forms are covered in the original description.

Two males were received, one bearing a label "Berks Cy. Pa.," the other merely bearing a name label "Crocota obscura." This latter specimen may or may not be a type. It well may be the "pale fawn" colored specimen mentioned in the original

description, which is possibly the "New Hampshire, Fernald" specimen. E. opella and its forms are not common north of Pennsylvania, the large New England specimens usually being forms of immaculata. This specimen, labeled simply "Crocota obscura" is not an opella form, but is an immaculata form. The hind wings show some black markings which cannot be clearly seen because of the bad condition of the specimen. We are inclined to consider it simply immaculata var. trimaculosa Reak.

No specimen was received which was concolorously smoky-brown, as mentioned in the original description. This type, which may have served as a basis for Figure 25 (1906) has presumably been either lost or destroyed. It appears to have been the form subsequently described as *belmaria*, Ehrm.

The second specimen we received is accurately described in the original description, "Sometimes the primaries are fawn color and the secondaries smoky, in which case the head, thorax and abdomen are the color of the primaries." This specimen is the one bearing the label "Berks Cy. Pa." We have little doubt that this is one of the "Pennsylvania, Strecker" types, as we have seen similarly labeled material in the Strecker collection. This being the only reasonably certain "type" we restrict the name *obscura* to the form represented by this specimen. We decidedly believe in "lectotypes," but have not labeled this specimen "lectotype" because absolute certainty regarding its "type" status, is, of course, open to question.

A specimen compared by Benjamin with the type of nigricans Reak. (Strecker collection) agrees with this "type" of obscura Stretch.

The name *obscura* must be removed from the synonymy of typical *opella* and placed as a synonym of form *nigricans*. No form described or figured by Stretch under the name *obscura* could be placed as typical (but not form normal) *opella*.

A resume of the form names applicable to opella might be in order.

LEPTARCTIA CALIFORNIÆ form DIMIDIATA Stretch

1873, Stretch, Zyg. & Bomb. N. Am., p. 123, pl. V, ff. 7-10, Leptarctia. 1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. IV, ff. 13-15, Leptarctia.

Evidently described from a series of males, collections Edwards and Stretch. The "Edwards" mentioned by Stretch is presumably Henry Edwards, but Beutenmuller does not list any types of *dimidiata* in the Henry Edwards collection.

Two specimens were received bearing small round white pin labels "287a" and "287b," respectively, both being identified as "Leptarctia dimidiata" in the Stretch collection, but this label being on another (a common) pin. Neither of these appear to have served for any of Stretch's figures, but agree well with his description, which covers a variable form, and we think they probably are types. Neither have any yellow on the upper side of the hind wings. The fore wing of one, "287b," has the white markings more reduced than in Stretch's figure 7 (1873); the other has the fore wing transversely banded, somewhat as in Stretch's figure 9, but lacks the tongue of white extending into the cell, while the only other white markings besides the band is a small subapical spot.

Neoarctia yarrowii (Stretch)

1873, Stretch, Zyg. & Bomb. N. Am., p. 221, pl. IX, f. 7, Arctia. 1906. Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. IV, f. 5, Euprepia.

Described from a single δ , "pressed as flat as a botanical specimen," Arizona, collection R. H. Stretch, collected by U. S. Exploring Expedition, under Lieutenant Wheeler.

A single specimen was received, bearing a small square white label "21"; and another label "A. yarrowii Type," apparently in Stretch's handwriting.

This specimen agrees identically with the original descrip-

tion, including its flattened condition, and with Stretch's figures. There can be little doubt about it being the true type.

The species is correctly identified in collections, and we possess specimens agreeing with the type; in fact, one specimen is practically an exact match in the most minute details of its maculation.

Stretch's locality is peculiar, as we have seen the species only from high altitudes of Western Canada, Laggan, and Mt. Field.

APANTESIS INTERMEDIA (Stretch)

1873, Stretch, Zyg. & Bomb. N. Am., p. 216, pl. IX, f. 3, Arctia.

Described from a single male, Texas, Belfrage.

A single 3 was received, the pin bearing a small round label "548," and above this a black label, which is indicative of Utah.

We do not know if this is the type or not. There may have been some error in labeling, the black label may have been added subsequently, or the specimen may actually have come from Utah, as we have lately received three specimens of this species from Mr. Spalding.

A second δ , which was placed as *intermedia* by Stretch, cannot be the type, as it does not match his figure at all well, being form *stretchi* Grt.

Apantesis parthenice ab. approximata (Stretch)

1885, Stretch, Ent. Amer., I, 104, Arctia.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 122, pl. VIII, f. 10, Arctia.

"Described from one 2, sent me by Hy. Edwards, who states that he has another identically the same." "Hab. Canada."

A single 9 was received. This bears a small printed label, "Canada," and a larger label, "What is this? I have another exactly same," in what appears to be Henry Edwards' handwriting. On the same label, above the question, is written "A. approximata Str."

This specimen agrees with Stretch's description (1885) and figure (1906). It is a rare aberration, and we have been unable to duplicate it. We have no doubt that this is the true type.

Apantesis ornata ab. obliterata (Stretch)

1885, Stretch, Ent. Amer., I, 105, Arctia.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 121, pl. VI, f. 14, Arctia.

Described from a single male received from W. H. Edwards, locality unknown.

A single male was received which appears to agree with the original description. It is labeled "Arctia obliterata Str. type." It is an old specimen, faded, rubbed and broken, the vestiture badly matted.

We see no real reason to doubt the authenticity or correctness of the type label which appears to be in Stretch's handwriting. The figure in the Journal of the New York Entomological Society, evidently a drawing, agrees in all of the essential details with this specimen. Granting that this is the type, that figure is not as well executed as most, but we believe this is due to the poor condition of the specimen confusing the artist, and that we have before us the original specimen from which that figure was made.

At first glance the type appears to represent a species belonging to the *quenselii* group, the hind wings so faded that they appear reddish-orange, like an occasional fresh specimen of Alberta *turbans*. As described by Stretch, the hind wing shows no basal black shade, but even in its present condition traces of the median spots are present.

It is possible that obliterata is a distinct species, as yet very rare in collections. We have seen no specimens other than the type. The markings of the hind wing seem to preclude the possibility of its being a form of quenselii, which, with gelida and turbans, is represented in the Barnes collection by fifty specimens, none of which shows the black median spots. We are inclined to agree with past placement as an aberration of ornata, which is probably the most variable species in the genus. We have about two hundred specimens representing ornata and its named and unnamed forms before us, although we fail to match the type of obliterata with any single specimen. The hind wings of ornata forms may be of any shade of yellow to red, more or less marked by black, the basal black shade often obsolete, three black median spots present or absent, the fore wing with veins marked or unmarked, and any of the transverse markings except the W mark may be obsolescent or completely lost. The size, also, varies greatly, typical ornata being much larger than form edwardsii.

APANTESIS VITTATA PHALERATA (Harris)

1835, Harris, Rept. Geol. Mass., 2nd Ed., p. 593 (nom. nud.), Arctia. 1841, Harris, Ins. Inj. Veg. Mass., p. 245, Arctia.

pulcherrima (Stretch).

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 122, pl. VIII, ff. 18-19, phalerata var., Arctia.

A single 9 was received, labeled "Carbondale, Ills., July 22, 1882, French Coll.," the pin also bearing a label, "A phalerata v. pulcherrima."

This specimen agrees well with figure 18 of Stretch's plate, and is probably this type. It represents the general conception of ordinary female *phalerata*.

APANTESIS VITTATA PHALERATA ab. INCARNATA (Stretch) 1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 120, 121, pl. V, f. 21, pl. VII, ff. 4-5, *Arctia*.

Page 120 of original description reads, "21. Arctia phalerata var. incarnata &, n. var."; page 121 reads, "4. Arctia phalerata &, var. incarnata Stretch"; "5. Arctia phalerata &, var. incarnata Stretch." All three figures look somewhat different.

Figure 4 shows a well-marked hind wing, the fore wing with W-mark incomplete and apparently the costal area not marked by black.

Figure 5 shows the markings of the hind wings reduced, the fore wing with the W-mark complete, but a dotted line near the costa may indicate that the costa is black-marked.

Figure 21 indicates a hind wing heavily black-spotted, and, from the shading, in comparison with other figures, that the hind wing is decidedly red, the fore wing with complete W-mark and no indication of black on the costa basad of the "t. p." line.

A single specimen was received, labeled, "Carbondale, Ills., July 13, 1882. French Coll.," and a handwritten label, in what appears to be Stretch's handwriting, "A phalerata var. incarnata." This specimen is much like figure 5, but obviously not the original of that figure, as it lacks black dots between the anal and cubital veins of the hind wing. Although it was probably in Stretch's hands in 1906, because the name *incarnata* rests only on figures as a description, we fail to see how this specimen can be considered a type.

With the types of *incarnata* (the figured specimens) apparently lost or destroyed, this identification by Stretch is valuable as evidence of what he considered his name to represent. This specimen appears to be the ordinary Illinois form of *phalerata*, with a little less black than usual on the hind wing.

Having brought to light the facts now available regarding

this name and the single specimen now in existence in the Stretch collection so labeled, we will allow the matter to rest, awaiting some truly revisional worker in the group who may wish to disregard this specimen and select figure 21 as *incarnata*, as this figure has both page and plate priority, and also a slight indication that it probably was the original specimen selected by Stretch for the name because of its plate number being labeled "n. var.," rather than simply "Stretch."

With this in mind, we list the name as an ab. of *phalerata*, but wish to be clearly understood that in no way are we attempting to restrict the name *incarnata*.

EUCHÆTIAS ELEGANS Stretch

1873, Stretch. Zyg. & Bomb. N. Am., p. 189, pl. VIII, f. 6, Euchætes (!).

1901, Hampson, Cat. Lep. Phal. B. M., III, 416 (partim. nec text fig. 168), Pygarctia.

1903, Holland, Moth Book, p. 136 (partim. nec text fig. 76, nec pl. XVI, f. 17), Pygarctia.

Described from 1 &, 1 2, Owen's Valley, California.

We received a & and & bearing small white round pin labels "623," the pin of the female bearing the label "Euchætes elegans Str."

These agree identically with Stretch's description and figure, and we have little doubt but that they are the true types.

There are no claws on the fore tibiæ, throwing the species out of Pygarctia and into Euchætias.

Hampson's text figure 168 shows a tibial claw, and consequently the placement of the species he determined as *elegans* is correct, but he evidently had Mexican-Columbian specimens of some other species incorrectly identified as *elegans*, a species which is apparently unnamed, unless he drew his description solely from Stretch's publication and all of his specimens and his text-figure belong to what he terms ab. 1 *roseicapitis* N. and D., which is very likely.

Holland has fallen into the same error, and his text-figure is copied from Hampson. His plate-figure is apparently nothing but typical *roseicapitis* N. and D., which name must again assume specific rank.

If Stretch's description and figure be matched against specimens of *E. castalla* B. and McD. they will be found to fit. However, a critical examination of the types of both names

reveals that the types of castalla possess in both sexes much longer terminal bristles to the antennal pectinations than the types of elegans. A single male specimen agreeing with the type δ of elegans is in the Barnes collection from Kingman, Arizona, October 16-23. All other similar-looking specimens we have seen possess the longer antennal bristles of castalla.

We have a long series of *castalla* from Santa Catalina Mountains, Baboquivari Mountains, Redington, Douglas, Phoenix, and Christmas, Gila County, Arizona. The type, and only specimen we have seen, of aberration *griseopunctata* B. and McD. possesses antennæ similar to those of the type of *castalla*.

EUCHÆTIAS OREGONENSIS Stretch

1873, Stretch, Zyg. & Bomb. N. Am., p. 187, pl. VIII, f. 7, Euchæ-tes (!).

Described from a single &, Oregon, Coll. Stretch, from Lord Walsingham.

Three specimens were received: 2 &, 1 \, 2. All belong to the species now going under the name oregonensis in collections. The female is labeled "Adirondack, New York," "Oregonensis Str.," and hence can scarcely be the type. One male is labeled "Near Hot Springs, Las Vegas, N. M. 7000 ft. July '82. F. H. Snow," "19," "Euchætes oregonensis Str.," and can scarcely be the type unless labels have been changed. The pin of the other male simply bears a small round white pin label "622," presumably referring to a catalogue of the Stretch collection, which we are informed has been lost or destroyed. This specimen agrees well with the original description and figure, and is very likely the type. Even if it is not the type, the correct determination of the name oregonensis seems beyond reasonable doubt.

GROTELLAFORMA LACTEA (Stretch)

1883, Stretch, Ent. Amer., I, 103, Cisthene.

1900, Hampson, Cat. Lep. Phal. B. M., II, 373, (ignot.), pl. XXIX, f. 26, *Illice*.

1903, Dyar, Bull. U. S. N. M., LII, 81, No. 818, Clemensia.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. III, f. 32, Cisthene (?).

1917, Barnes & McDunnough, Check List, p. 31, No. 893, Clemensia.

1922, Barnes & Benjamin, Contr. N. H. Lep. N. A., V, (1), 26, (ignot.), Grotella (?), "Cisthene."

calora Barnes.

1907, Barnes, Can. Ent., XXXIX, 68, 93, Grotella.

1917, Barnes & McDunnough, Cont. N. H. Lep. N. A., I, (4), 11, pl. IV, f. 7 (type 3), Grotella.

1922, Barnes & Benjamin, Contr. N. H. Lep. N. A., V, (1), 24-26, pl. I, f. 17 & genit. (topotype), Grotellaforma.

Lactea was apparently described from more than one specimen, Providence Mountain, San Bernardino County, California.

A single male labeled "Cisthene lactea" was received. This agrees with the original description, although it does not identically match Stretch's later figure in number of black spots present on the primaries.

Hampson's figure of *lactea* is poor, not agreeing with either the original description nor Stretch's figure.

The species is not common in collections (although Poling recently sent us a series of specimens from the Baboquivari Mountains, Arizona).

When we wrote our revision of Grotella (1922), we placed lactea as possibly an unknown Grotella, because of the habitus indicated by Stretch's figure and description, and because we knew of one white-winged Grotella (stretchi B. and Benj.) from Riverside County, California. We named stretchi, from the desert, because it was obviously not lactea, and concluded that in all probability lactea was an allied species from the mountains. At that time we only knew calora from type localities, and thought likely it was restricted to the region of Southern Arizona to the Argus Mountains. Since then, more specimens have come to hand, and these, with a few found in unsorted material, enable us to record the species from the following additional localities: Mohave County, Hualapai Mountains, Mohave County, Baboquivari Mountains, and Ajo, Pima County (west of the Baboquivari Mountains), Arizona, and Clark County, Nevada.

There is little doubt but that the Stretch specimen we received is conspecific with calora. At the time of our original description of the genus Grotellaforma we overlooked an almost microscopic spine on the inner side of the fore tibia, usually completely hidden by the tibial vestiture. Our description should be changed to include this spine. We have been totally unable to find any other spines on any of the tibiæ, although we have carefully descaled the tibiæ of a number of specimens. The Stretch specimen complies with calora in

maculation, frons, and tibial armature. Fortunately it is a male, and the genitalia were sufficiently open so that the corona of spines shown in our figure of the valve of *calora* could be easily seen. Our text in this regard should read "dorsal corona" instead of "ventral corona." Our figure is correct.

The species is quite variable in the presence or absence of any of the black spots on the primaries, and the color of the secondaries as stated in our revision, "usually fuscous, occasionally rather pale." The Stretch specimen has pale secondaries, which he might well have considered white, while the type of calora has fuscous secondaries. Two "cotypes" of calora have the secondaries intermediate, while we have other specimens with secondaries as pale as the Stretch "type." In the series before us, the freshest-looking specimens have the darkest hind wings, while rubbed specimens have the palest. We do not know if pale specimens occur in fresh material or not. The Stretch "type" is so badly rubbed that no fringe is present on the wings.

HARRISINA AMERICANA AUSTRALIS Stretch

1885, Stretch, Ent. Amer., I, 102, Harrisina.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. III, f. 42, Harrisina

Described from Florida, Henry Edwards, ô.

A single & is in the Stretch collection, labeled "Indian Riv., Florida"; another label reading, "Harrisina australis type."

This specimen agrees with the original description, and is probably the true type. The name has been correctly identified in collections.

HARRISINA METALLICA Stretch

1885, Stretch, Ent. Amer., I, 102, Harrisina.

1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. III, f. 41, Harrisina.

Described from specimen (s?) received from Professor F. H. Snow, New Mexico.

A single & is in the Stretch collection, labeled "New Mexico, F. H. Snow," another label bearing "2," and a third label reading, "Harrissina metallica type."

This specimen agrees with the original description, and is probably (one of) the true type (s). The name has been correctly identified in collections.